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Claims

We claim:

1. A color changing apparatus for multiple color coating of conductive coating material, wherein a pipe joint a2 is provided to be movable on a guide rail 1 and an electrostatic spray device 4 connected to the pipe joint a2 through a pipeline 7 are provided; a plurality of coating material supply circulation circuits are provided, each including a liquid tank 11 for holding a coating material source, a pump 12 and a pipe joint b13 disengageably engaged with the pipe joint a2, the liquid tank 11 and the pump 12 and the pipe joint b13 being connected through a pipeline; and the pipe joint a2 and the pipe joint b13 in the plurality of coating material supply circulation circuits are selectively disengaged from each other.
2. The apparatus of claim 1 wherein at least one of said liquid tanks 11 is for holding a source of electrically conductive, coating material, said at least one liquid tank is selectively insulable from ground.
3. The apparatus of claim 2 further comprising a power supply 5 for applying an electric charge to said electrically conductive coating material discharged from said spray device 4 and a voltage block which electrically isolates said liquid tank which is transmitting the electrically conductive coating material to said spray device from electrical ground.
4. The apparatus of claim 3 wherein said voltage block electrically isolates from said spray device 4 said liquid tanks which are not transmitting coating material to said spray device.
5. The apparatus of claim 1 further comprising a relay for each of said supply circulation circuits, wherein each of the liquid tanks is selectively electrically insulable from ground and selectively groundable.
6. The apparatus of claim 1 further comprising a drive for moving the guide rail.
7. The apparatus of claim 6 wherein the drive comprises a hydraulic operable cylinder.
8. The apparatus of claim 1 further comprising a check valve for each of said pipe joints,

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such that coating material flow is allowed when the pipe joint a2 is connected with a respective said pipe joint b13 and coating material flow is automatically stopped when the respective connected pipe joints a2, b13 are disconnected.

9. The apparatus of claim 1 wherein each supply circulation circuit further comprises a pressure adjusting valve and circulation valve.

10. In a coating system having a plurality of sources of different coating materials, wherein at least one of said coating materials is electrically conductive, a corresponding plurality of coating material couplings each one of which is connected to a respective one of said plurality of sources of different coating materials, an electrostatic spray device, and a movable coupling connected to said spray device, a method for supplying coating material from one of said sources to said spray device and electrically charging said coating material discharged from said spray device, comprising the steps of:

supplying coating material from a first source of coating material to a first coating material coupling connected with said first source;

moving said movable coupling to first position wherein said movable coupling is engaged with said first coating material coupling to permit coating material to be transmitted from said first source through said movable coupling;

supplying coating material from said movable coupling to said spray device;

electrically isolating said first source of coating material from electrical ground while coating material is being transmitted from said first source to said spray device; and charging said coating material discharged from said spray device.

11. The method of claim 10, further comprising the steps of:

terminating the transmission of coating material from said first source to said spray device;

disengaging said movable coupling from said first coupling;

cleaning said movable coupling and said spray device of residual coating material from said first source of coating material;

moving said movable coupling to a second position wherein said movable coupling is engaged with a second coating material coupling which is connected to a second source of coating material; and

transmitting coating material from said second source of coating material to said

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spray device while electrically isolating said second source of coating material from electric ground while ensuring said first source is electrically grounded.

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